

We Claim:

1. LHR purified to a single band on SDS-PAGE as visualized by silver stain.
2. The LHR of claim 1, being the HuLHR.
3. The LHR of claim 1, being the MLHR.
4. The LHR of claim 1 which binds to the high endothelial venules of lymphoid tissue.
5. The LHR of claim 1, wherein the LHR is not associated with native glycosylation.
6. The LHR of claim 1 wherein the LHR has variant glycosylation.
7. The LHR of claim 1 in a physiologically acceptable carrier.
8. The LHR of claim 7, wherein the carrier is a sterile, isotonic solution.
9. The LHR of claim 7, wherein the carrier is a sustained-release formulation.
10. The LHR of claim 7, wherein the carrier is a liposome.
11. A DNA isolate encoding the LHR.
12. The DNA isolate of claim 11 wherein the DNA isolate is free of genomic DNA which encodes another polypeptide from the source of the DNA isolate.

- 3 ~~13~~. The DNA isolate of claim ~~11~~<sup>1</sup>, wherein the DNA encodes a polypeptide having the amino acid sequence shown in figure 1.
- 5 4 ~~14~~. The DNA isolate of claim ~~11~~<sup>1</sup>, wherein the DNA encodes a polypeptide having the amino acid sequence shown in figure 2.
- 10 5 ~~15~~. The DNA isolate of claim ~~11~~<sup>1</sup>, comprising DNA encoding an LHR carbohydrate binding domain free of epidermal growth factor domains and complement binding domains.
- 15 6 ~~16~~. The DNA isolate of claim ~~11~~<sup>1</sup>, comprising DNA encoding an LHR epidermal growth factor binding domain free of carbohydrate binding domains and complement binding domains.
- 20 7 ~~17~~. The DNA isolate of claim ~~11~~<sup>1</sup>, comprising DNA encoding an LHR complement binding domain free of carbohydrate binding domains and epidermal growth factor binding domains.
- 25 8 ~~18~~. The DNA isolate of claim ~~11~~<sup>1</sup>, comprising DNA encoding an LHR complement binding domain and an epidermal growth factor domain.
- 30 9 ~~19~~. The DNA isolate of claim ~~11~~<sup>1</sup>, having DNA encoding a LHR carbohydrate binding domain, a LHR epidermal growth factor binding domain, and a LHR complement binding domain, wherein the DNA encoding the LHR carbohydrate binding domain is replaced by a heterologous carbohydrate binding domain.
- 35 10 ~~20~~. The DNA isolate of claim ~~11~~<sup>1</sup>, having DNA encoding a LHR carbohydrate binding domain, a LHR epidermal growth factor binding domain, and a LHR complement binding domain, wherein the DNA encoding the LHR epidermal growth factor binding domain is replaced by a heterologous epidermal growth factor binding domain.

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21. The DNA isolate of claim <sup>11</sup>~~11~~, having DNA encoding a LHR carbohydrate binding domain, a LHR epidermal growth factor binding domain, and a LHR complement binding domain, wherein the DNA encoding the LHR complement binding domain is replaced by a heterologous complement binding domain.

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22. A recombinant expression vector comprising DNA encoding the LHR.

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23. A composition comprising a cell transformed with the recombinant expression vector of claim <sup>12</sup>~~22~~.

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24. The composition of claim <sup>13</sup>~~23~~ wherein the cell is a mammalian cell.

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25. The composition of claim <sup>13</sup>~~23~~ wherein the cell is a chinese hamster ovary cell line.

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26. A process for producing the LHR which comprises transforming a host cell with nucleic acid encoding said LHR, culturing the transformed cell and recovering said LHR from the cell culture.

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27. The process of claim <sup>16</sup>~~26~~ wherein the host cell is a eukaryotic cell.

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28. The process of claim <sup>16</sup>~~26~~ wherein the LHR is HuLHR.

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29. The process of claim <sup>16</sup>~~26~~ wherein the LHR is MLHR.

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30. The process of claim <sup>16</sup>~~26~~ wherein the LHR is secreted into the culture medium and recovered from the culture medium.

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Claim 21 →

Sub B4

31. A DNA sequence greater than about 10 bp, capable of hybridizing under stringent conditions to a fragment of the LHR gene.
- 5 <sup>22</sup>  
~~32.~~ The DNA sequence of Claim <sup>21</sup>~~31~~, wherein the stringent conditions are overnight incubation at 42 °C in a solution comprising: 20% formamide, 5XSSC (150 mM NaCl, 15 mM trisodium citrate), 50 mM sodium phosphate (pH 7.6), 5X Denhardt's solution, 10% dextran sulfate, and 20 µg/ml denatured, sheared salmon sperm DNA.
- 10 <sup>23</sup>  
~~33.~~ The DNA sequence of Claim <sup>21</sup>~~31~~, wherein the fragment is a biologically active fragment.
- 15 <sup>24</sup>  
~~34.~~ The DNA sequence of Claim <sup>21</sup>~~31~~, wherein the fragment is from the coding region of the LHR.
- <sup>25</sup>  
~~35.~~ The DNA sequence of claim <sup>21</sup>~~31~~, ligated to DNA from a non-human source.
- 20 <sup>26</sup>  
~~36.~~ The DNA sequence of claim <sup>21</sup>~~31~~, wherein the fragment comprises a fragment of the DNA sequence of Fig. 1 or Fig. 2 which is greater than about 10 bp.
- 25 <sup>27</sup>  
~~37.~~ The DNA sequence of claim <sup>21</sup>~~31~~, wherein the fragment comprises a fragment of the DNA sequence of Fig. 1 or Fig. 2 which is greater than about 20 bp.
- 30 <sup>28</sup>  
~~38.~~ The DNA sequence of claim <sup>21</sup>~~31~~, wherein the fragment comprises a fragment of the DNA sequence of Fig. 1 or Fig. 2 which is greater than about 50 bp.
- <sup>29</sup>  
~~39.~~ The DNA sequence of claim <sup>21</sup>~~31~~, wherein the fragment comprises a fragment of the DNA sequence of Fig. 1 or Fig. 2 which is greater than about 100 bp.
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- 30  
40. The DNA sequence of claim <sup>21</sup>31, wherein the fragment comprises an LHR carbohydrate binding domain.
- 5 31  
41. The DNA sequence of claim <sup>21</sup>31, wherein the fragment comprises an LHR epidermal growth factor domain.
- 32  
42. The DNA sequence of claim <sup>21</sup>31, wherein the fragment comprises a complement binding domain.

- 10 Sub B5  
43. A DNA sequence coding for the HuLHR, which DNA is substantially free of DNA encoding other human polypeptides.
- 15 P  
44. A polypeptide comprising an LHR carbohydrate binding domain.
- 20 K  
45. A polypeptide comprising an LHR epidermal growth factor domain.
- 25 a  
46. A polypeptide comprising an LHR complement binding domain.
47. A polypeptide comprising an LHR transmembrane domain.
48. A polypeptide comprising an LHR cytoplasmic domain.

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